



Utah Governor's Energy Development Summit

Financial Pathways for Energy Efficiency Projects

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Lowering the Cost of Energy Consumption

$$\text{Total Energy Cost} = \text{Energy Unit Cost } \underline{X}'\text{s Amount of Units Used}$$

■ Energy Types and Costs

- ◆ Fluctuating market costs driven by supply, demand, regulations, geo-political risk, transmission costs, environmental concerns, other external costs and risks
- ◆ New technology development to improve cost of existing energy resources and identify less expensive new energy technologies

■ Decreasing Usage = Increasing Efficiency

- ◆ The low hanging fruit

■ Governments are the low hanging fruit for the low hanging fruit

- ◆ Large owners and operators of capital facilities/vehicles
- ◆ Low debt costs
- ◆ Mandated to lead public policy and reduce costs





The Cost of New Capital Improvements

- The decision to invest in technologies that will lower energy costs could be an easy business decision, but barriers can exist:
 1. High upfront capital costs
 2. Savings benefits captured over time,
 3. Limited available money for new improvements

Methods for Financing Capital Projects

	Pay-As-You-Go Revenue	Save-Up- and Set-Aside Revenue	Grants and Loans	Debt Financing
POSITIVES				
Interest is earned		■		
No interest is paid	■	■		
Those who use the project pay for it (Aligns project users and payers at the same time)			■	■
The project is completed immediately			■	■
NEGATIVES				
Requires interest payment				■
Long wait-time to complete project	■	■		
Risk of inflation costs	■	■		
Possible conditions for use			■	
Arduous qualification process			■	

Source: Zions Bank Public Finance

Characteristics of Different Types of Bonds

BOND TYPE	Security/Collateral	Source of Revenue for Repayment	Required Authorization	Types of Projects	Debt Incurring Capacity
General Obligation (G.O.) Bonds <i>Bond Act 11-14</i>	Ad valorem property taxes	G.O. property tax levy, general fund, or other revenues	50% vote held in November or June	Many public projects	8% to 12% of city's market value
Revenue Bonds (Enterprise Fund) <i>Bond Act 11-14</i>	Revenues from water, sewer, electric, or other enterprise funds	Revenues from water, sewer, electric, or other enterprise funds	Authorization from City Council	Projects related to revenue source being pledged	Determined by market, min. 1.25 times coverage
Excise Tax Revenue Bonds <i>Bond Act 11-14</i>	Revenues from sales tax, class C road tax, franchise tax, or other excise taxes	Excise tax revenues or other available general fund revenues	Authorization from City Council	Roads and other public projects	Determined by market, min. 1.25 times coverage
Lease Revenue Bonds <i>LBA Act 17D-2</i>	Leased revenues and financed improvements	Annual appropriation lease revenues from city operations or other revenues	Authorization from City Council and LBA Board	Real property, noninfrastructure	Determined by market
Tax Increment Bonds <i>17C-1-501-508</i>	Tax increment from tax base growth in RDA	Tax increment revenues	Authorization from City Council and possibly other taxing authorities	Water, sewer, road, and other infrastructure	Determined by market, 2-3 times coverage
Special Assessment Bonds <i>Bond Act 11-42</i>	Assessed property within Special Assessment Area	Special Assessments against property	Creation of SAA and authorization by City Council	Water, sewer, road, and other infrastructure	Determined by market, 3-4 times coverage

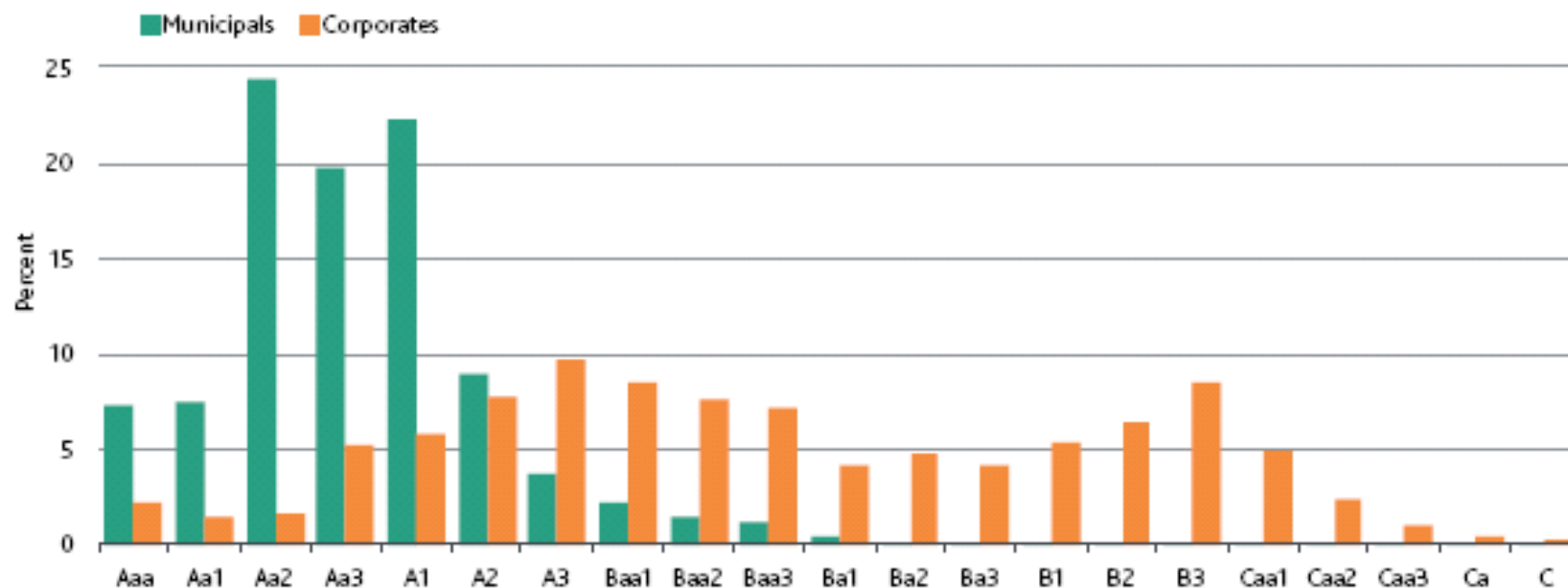
Source: Zions Bank Public Finance

Bond Ratings

MOODY'S	S&P'S	FITCH'S	
Investment Grade			
Aaa	AAA	AAA	Highest Top Quality; "Gilt-edged" High Grade; Very Strong
Aa1	AA+	AA+	
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Upper Medium Grade; Strong
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	Medium Grade; Adequate
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	

Source: Zions Bank Public Finance

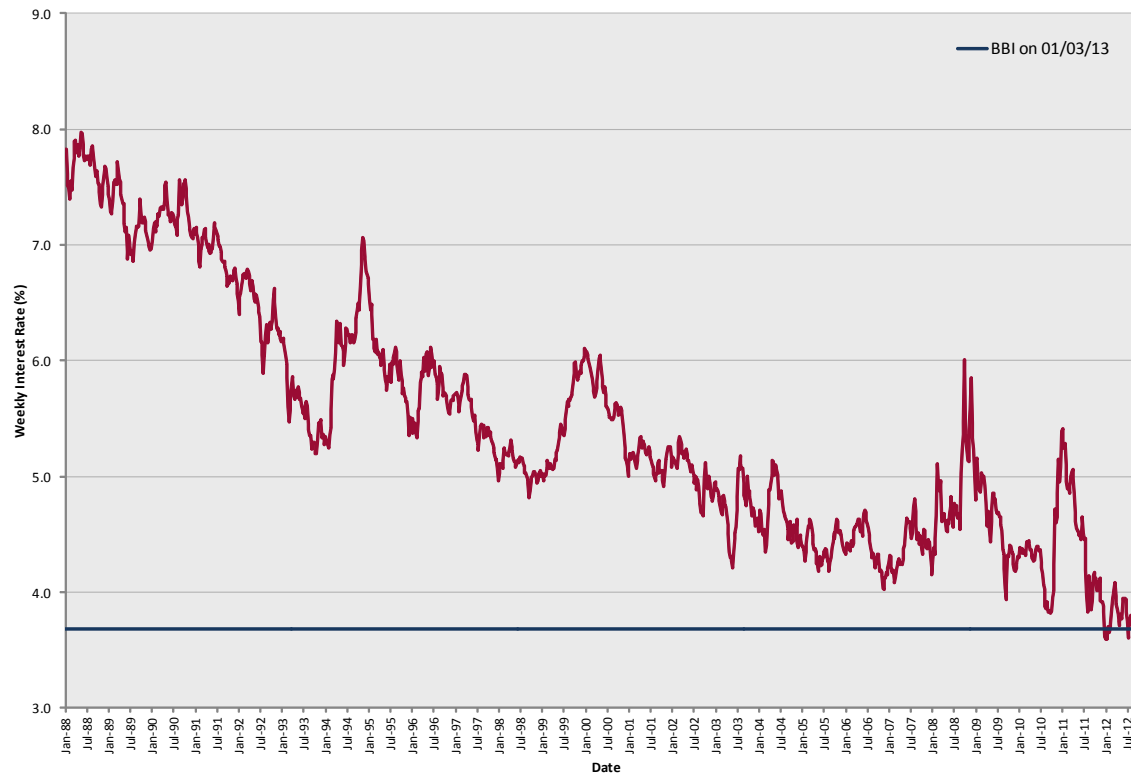
Moody's Ratings Distributions: Municipals vs. Corporates, Year End 2011



Source: http://www.moodys.com/viewresearchdoc.aspx?docid=PBC_140114

Municipal Bond Interest Rates

Interest Rate Trend
20 Year 20 Bond Buyer Index
January 1988 to January 2013



Since January 1988:

Interest rates have been higher than the current BBI 98.31% of the time.

Interest rates have been lower than the current BBI 1.69% of the time.

Decoupling the Risk

- How will the debt be paid if the savings do not materialize?



- Municipal finance risk analysis
 - ◆ Collateral exists and can be collected upon
 - ◆ Revenue sources available to pay debt
 - ▣ Savings from energy efficiency
 - ▣ General Fund revenues (property taxes, sales taxes, etc)



Case Study: Salt Lake County Energy Efficiency Retrofit

- Salt Lake County conducted energy audits on 54 county facilities to identify potential energy saving measures.
 - ◆ 27 public gathering facilities such as libraries and senior centers;
 - ◆ 7 outdoor swimming pools;
 - ◆ 10 indoor swimming pools, recreation centers or ice sheets;
 - ◆ 4 storage or shop facilities used for support services;
 - ◆ 6 twenty-four hour facilities.

Case Study: Salt Lake County Energy Efficiency Retrofit

■ Cost saving improvements:

- ◆ hot water pipe insulation,
- ◆ lighting retrofits,
- ◆ water efficiency devices (faucet aerators),
- ◆ motor upgrades,
- ◆ control upgrades,
- ◆ pump variable frequency drives,
- ◆ use of swimming pool covers,
- ◆ LED street lighting upgrades,
- ◆ solar thermal devices for indoor swimming pools,
- ◆ upgrades to existing HVAC systems,
- ◆ upgrades to the County's telephone system,
- ◆ use of a centralized building management system.

■ \$15 million cost for improvements, all would pay for investment over lifetime of product

Case Study: Salt Lake County Energy Efficiency Retrofit

- Salt Lake County has bond ratings of
 - ◆ G.O. Bonds: AAA/Aaa/AAA
 - ◆ MBA Lease Revenue Bonds: AA+/Aa1/AA+
- Salt Lake County secured \$15 million for energy efficiency financing with an annual appropriation lease purchase agreement
 - ◆ Low interest rates
 - ◆ Terms allow money to be drawn down when needed
- Having financing terms in place enabled the departments to make improvements that made business sense
 - ◆ Could no longer say “no” to projects since financing was in place
- 1/3 of projects were actually completed, 1/2 of those self-financed.

Other Energy Efficiency Financing Examples

■ Syracuse City – Street Lighting

- ◆ Financed purchase and/or lighting upgrade of 709 street lights
- ◆ Estimate annual savings of \$71,000

■ Davis School District – Lighting Upgrade

- ◆ Financed upgrades of lights and ballasts in buildings throughout district using an annual appropriation lease purchase agreement

■ Jordan School District – Natural Gas Bus Fleet

- ◆ Owns and operates 54 compressed natural gas (CNG) buses and 76 CNG fuel dispensers
- ◆ CNG buses acquisition cost is \$26,276 more than diesel buses
- ◆ CNG buses pay only \$1.49 per gallon (market) or \$0.80 per gallon (if District owns fuel dispenser) for fuel

CNG Bus Financing Analysis

CNG Bus Financing Assumptions

Additional Cost of 1 CNG Bus:	\$26,276
10 Buses:	\$262,760
Borrowing Rate:	2.75%
Length of Financing (years):	10
Annual Debt Payment:	\$30,412

Fuel Usage Assumptions and Comparison

Miles driven per Bus per year:	12,000
Total miles driven by 10 buses:	120,000
* Total diesel cost (\$3.50 per gal.) per year:	\$70,000
* Total CNG cost (\$1.49 per gal.) per year:	\$29,800
Annual Cost Savings: CNG vs. Diesel:	\$40,200

Cash Flow Analysis - Self Finance Up Front

Year	Cost	Savings	Total
1	(\$262,760)	\$40,200	(\$222,560)
2	0	\$40,200	\$40,200
3	0	\$40,200	\$40,200
4	0	\$40,200	\$40,200
5	0	\$40,200	\$40,200
6	0	\$40,200	\$40,200
7	0	\$40,200	\$40,200
8	0	\$40,200	\$40,200
9	0	\$40,200	\$40,200
10	0	\$40,200	\$40,200

Cash Flow Analysis - Debt Finance

Year	Cost	Savings	Total
1	(\$30,412)	\$40,200	\$9,788
2	(\$30,412)	\$40,200	\$9,788
3	(\$30,412)	\$40,200	\$9,788
4	(\$30,412)	\$40,200	\$9,788
5	(\$30,412)	\$40,200	\$9,788
6	(\$30,412)	\$40,200	\$9,788
7	(\$30,412)	\$40,200	\$9,788
8	(\$30,412)	\$40,200	\$9,788
9	(\$30,412)	\$40,200	\$9,788
10	(\$30,412)	\$40,200	\$9,788

* assumes both CNG and diesel get 6 miles per gallon fuel efficiency

 Year that total annual savings surpasses initial investment cost

Types of Municipal Bond Pricing

■ Tax Exempt Bonds:

- ◆ investors do not pay taxes on interest earned, which helps reduce the interest rate on the bonds

■ Qualified Energy Conservation Bonds:

- ◆ Investors pay taxable rate
- ◆ Borrower receives a direct pay subsidy from the federal government, currently about \$3.20 a year for every \$100 borrowed, to lower the overall cost of financing to an effective interest rate in the range of 0% to 3%.
- ◆ For use with energy efficiency programs for public buildings where a 20% reduction in energy costs is achieved, renewable energy projects and other green community programs.

■ State of Utah Building a QECB Revolving Loan Program for local governments



Salt Lake County Residential Energy Efficiency Loan Program

- Combine low financing cost of QECB and 90% federal guaranty for Power Saver loan program
- Salt Lake County selects a qualifying third party lender to make loans for residential energy efficiency projects up to \$25,000
 - Credit requirements include:
 - FICO ≥ 660 ; Debt-to-income $\leq 45\%$; Loan-to-value $\leq 100\%$
 - Employment and income verification requirement (2 years)
- Salt Lake County allows third party lender to utilize up to \$4.6 million of QECB allocation to provide low interest rate residential energy efficiency loans.
- Salt Lake County is NOT the lender and passes risk of each individual financing to the chosen third party financing institution.